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**DIVISIONAL**  
**APPLICATION DATA SHEET**  
**FOR**  
**UNITED STATES LETTERS PATENT**

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**TITLE:**

PRE-PATTERNED SUBSTRATE LAYERS FOR  
BEING PERSONALIZED AS NEEDED

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**PRE-PATTERNED SUBSTRATE LAYERS FOR BEING PERSONALIZED  
AS NEEDED**

**BACKGROUND OF THE INVENTION**

*Field of the Invention*

5           The present invention generally relates to multilayer ceramic substrates  
and a method of forming the same.

*Description of the Related Art*

10           In traditional processing, a substrate contains signal or redistribution layers  
(which contain connections between different points) and voltage layers which  
look like mesh planes. Signal or redistribution vias pass through, without  
connecting to, the mesh plane. To the contrary, voltage vias connect with the  
mesh planes. Conventionally, each layer is fabricated separately which makes the  
process expensive and time consuming.

15           Ceramic packages for supporting semiconductor devices and the like  
include ceramic substrates with printed conductive stripes connected to the device  
and to input/output pins or other connections which are joined to boards or the  
like. While many techniques are known for forming such ceramic substrates, one

of the most popular procedures for such fabrication involves the casting of what is termed a ceramic greensheet, personalizing (i.e., punching and screening) the greensheet, stacking it with other personalized greensheets and subsequently processing and firing of the stack of ceramic greensheets. The method of producing such multilayer ceramic (MLC) substrates for semiconductor packaging and other electronics applications is well known as illustrated in U.S. Patents 4,234,367, 4,302,625 and 4,799,984, each of which is incorporated herein by reference.

In the traditional method of building MLC substrates, each personalized greensheet layer has a unique pattern which makes the personalization process expensive and time consuming. Accordingly, a new personalization process which is less expensive and time consuming is desired.

Building multi-layer personalized substrates is expensive and time consuming. For example, one part of the process involves applying the signal patterns to each layer (e.g., each greensheet) before lamination. A personalized via pattern must be drilled or punched for each layer as well. A process is needed that would improve the process time and reduce costs.

## SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide a structure and method for personalizing a multi-layer substrate structure that includes supplying